AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A lamp comprising:

an illuminant section having an illuminant for radiating light, the light having a size determined by an arc length, wherein the arc length has a direction aligned with an optical axis of the lamp;

a lamp reflector having a parabolic focus located at a center point of the illuminant, in the illuminant section, for reflecting, as a parallel light flux, parallel to the optical axis, ~~a~~ light ~~flux~~ radiated from the center point of the illuminant section, by a paraboloid of revolution surface developed around the optical axis and directed toward a forward direction of the optical axis; and

a lamp front glass perpendicular to the optical axis and having an incident ~~plane~~ surface and an outgoing ~~plane~~ surface, for receiving the parallel light flux from the lamp reflector through the incident ~~plane~~ surface and outputting the parallel light flux through the outgoing ~~plane~~ surface, wherein

the paraboloid of revolution surface of the lamp reflector is a deformation of an aspherical reflection surface rotationally symmetrical with respect to the optical axis, the aspherical reflection surface including a plurality of infinitesimal mirrors oriented at respective radiation angles with respect to the light from the illuminant section ~~so that~~,

~~a first~~ each infinitesimal mirror is ~~located at a position~~ arranged on the aspherical reflection surface ~~at which an outermost light ray at an outermost radiation angle of the light from the illuminant and traveling toward a negative direction, opposite the forward direction, of the optical axis, is reflected to a first intersection on the optical axis where the optical axis intersects the lamp front glass, the lamp front glass being perpendicular to the optical axis, a second infinitesimal mirror, adjacent the first infinitesimal mirror, is located on an intersection of a line extending from a reflecting surface of the first infinitesimal mirror and a first light ray from the illuminant and that is shifted from the outermost light ray by an infinitesimal angle toward the forward direction, so that the second infinitesimal mirror reflects the first light ray to a second intersection, shifted from the first intersection by an infinitesimal distance measured perpendicular to the optical axis, and each of the other infinitesimal mirrors is located at an intersection of a line extending from a reflection surface of an adjacent infinitesimal mirror and a respective light ray from the illuminant that is shifted from a light ray from the illuminant to the adjacent infinitesimal mirror by an infinitesimal angle, toward the forward direction, so that each of the infinitesimal mirrors reflects a corresponding light ray from the illuminant to a respective intersection shifted from the corresponding intersection for the adjacent infinitesimal mirror, measured in a direction perpendicular to the optical axis, and lies in a plane including the first and second~~

~~intersections~~ to reflect a light ray, within an effective light reflecting area of the lamp reflector and radiate from the illuminant section, in a corresponding constant infinitesimal angle dθ along the forward direction of the optical axis so that the light rays reflected by the corresponding infinitesimal mirror intersect the lamp front glass along a corresponding constant infinitesimal length dr on a line perpendicular to the optical axis, and all of the light rays radiated from the center point of the illuminant section and reflected by the lamp reflector propagate as the parallel light flux at the lamp front glass,

dr/dθ is constant for all of the lamp reflector,

at least one of the incident ~~plane~~ surface and the outgoing ~~plane~~ surface of the lamp front glass is a deformation of an aspherical lens surface rotationally symmetrical with respect to the optical axis, and

the light is collimated into the parallel light flux traveling parallel to the optical axis from the illuminant by applying corresponding power to control distribution of a divergent angle at the outgoing plane of the lamp front glass.

2. (Currently Amended) The lamp according to claim 1, including a circular area around the optical axis on the outgoing ~~plane~~ surface of the lamp front glass through which no outgoing light passes, generated when the light radiated by the illuminant reflected by the paraboloid of revolution is reduced by the reflection from the aspheric reflection surface and lens function of the aspheric lens surface.

3. (Currently Amended) The lamp according to claim 1, wherein outgoing light output through the outgoing surface of the lamp front glass has a divergence angle that becomes constant at an optional point on the outgoing ~~plane~~ surface.

4. (Previously Presented) A polarizing conversion optical system comprising:

the lamp according to claim 1;

a lens array comprising a plurality of lenses arranged for condensing the light from the lamp; and

a polarization conversion element comprising a plurality of polarizing beam splitters arranged near a lens focus of the lens array, for outputting outgoing light output from the lamp front glass after orthogonal polarized components of the outgoing light are made coincident with each other.

5. (Previously Presented) A condensing optical system comprising:

the lamp according to claim 1;

a condenser lens group for condensing the light from the lamp at a lens focus; and

a rod integrator for receiving at an incident plane the light condensed at the lens focus and outputting the light through an outgoing surface after repeated total internal reflection of the light within the rod integrator.

6. (Previously Presented) An image display device comprising:

the polarization converting optical system according to claim 4;

an optical modulation element for receiving incident light from the polarization converting optical system, modulating the incident light with image information, and outputting the light modulated with the image information;

an integrator optical system for overlapping and outputting the light output from the polarization converting optical system to the incident surface of the optical modulation element;

a projecting optical system for projecting the light modulated with the image information and transmitted from the optical modulation element; and

a screen for receiving the light modulated with the image information and projected by the projecting optical system, and displaying an image based on the light modulated with the image information.

7. (Previously Presented) An image display device

the condensing optical system according to claim 5;

a relay optical system for relaying light from the condensing optical system;

an optical modulation element for modulating the light relayed by the relay optical system with image information, and for outputting the light modulated with the image information;

a projecting optical system for projecting the light modulated with the image information from the optical modulation element; and

a screen for receiving the light modulated with the image information and projected by the projecting optical system, and for displaying an image based on the image information.

8. (New) The lamp according to claim 1, wherein

a first infinitesimal mirror is located at a position on the aspherical reflection surface at which an outermost light ray at an outermost radiation angle of the light from the illuminant and traveling toward a negative direction, opposite the forward direction, of the optical axis, is reflected to a first intersection on the optical axis where the optical axis intersects the lamp front glass,

a second infinitesimal mirror, adjacent the first infinitesimal mirror, is located on an intersection of a line extending from a reflecting surface of the first infinitesimal mirror and a

first light ray from the illuminant and that is shifted from the outermost light ray by an infinitesimal angle toward the forward direction, so that the second infinitesimal mirror reflects the first light ray to a second intersection, shifted from the first intersection by an infinitesimal distance along the line that is perpendicular to the optical axis, and

each of the other infinitesimal mirrors is located at an intersection of a line extending from a reflection surface of an adjacent infinitesimal mirror and a respective light ray from the illuminant that is shifted from a light ray from the illuminant to the adjacent infinitesimal mirror by an infinitesimal angle, toward the forward direction, so that each of the infinitesimal mirrors reflects a corresponding light ray from the illuminant to a respective intersection shifted from the corresponding intersection for the adjacent infinitesimal mirror, along the line that is perpendicular to the optical axis, and lies in a plane including the first and second intersections.

This listing of claims replaces all prior versions, and listings, of claims in the application.